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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/501,883

07/20/2004

Yasushi Hashizume

403137/SHINSEI

9013

23548 7590 08/24/2005

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EXAMINER

DICKEY, THOMAS L

ART UNIT

PAPER NUMBER

2826

DATE MAILED: 08/24/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/501,883

Applicant(s)

HASHIZUME ET AL.

Examiner

Thomas L. Dickey

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 20 July 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 July 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 7/20/04.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

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## **DETAILED ACTION**

1. The preliminary amendment filed on 7/20/04 has been entered.

### ***Oath/Declaration***

2. The oath/declaration filed on 7/20/04 is acceptable.

### ***Drawings***

3. The formal drawings filed on 7/20/04 are acceptable.

### ***Priority***

4. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

### ***Information Disclosure Statement***

5. The Information Disclosure Statement filed on 7/20/04 has been considered.

### ***Claim Rejections - 35 USC § 102***

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

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A person shall be entitled to a patent unless --

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-8 are rejected under 35 U.S.C. 102(e) as being anticipated by LOWTHER ET AL. (2003/0127686).

A. With regard to claims 1-4 Lowther et al. discloses a transformer (center-tapped inductor) that is a combination of two spiral inductors formed with two or more levels of electroconductive film layers (electrically conductive films) 120-122-124-126 (220-222-224-226-227-228 in figures 6 and 7) disposed on a semiconductor substrate 119 (240 in figure 7) with insulators 242 inserted therebetween, comprising a spiral interconnect 120-122 (220-222 in figure 6) formed by disposing spirally an i-th layer of electrically conductive films 120-122-124-126 electrically connected and vertically adjacent to each other, and an first underpass 132 interconnect that is formed with a k-th layer of electrically conductive films 120-122-124-126 electrically connected and vertically adjacent to each other, and that is electrically connected with the internal end (technically lacks antecedent basis) of the spiral interconnect 120-122, a second underpass (also numbered 132 in the close-up view of figure 4A) interconnect formed with h levels of electrically conductive films 120-122-124-126

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electrically connected and vertically adjacent to each other, and that is electrically connected with the portion of the spiral interconnect 120-122 other than both ends of the spiral interconnect 120-122; wherein in the portion where the spiral interconnect 120-122 and the first underpass 132 interconnect intersect each other, a j-th layers vertically adjacent to each other are used as the electrically conductive films 120-122-124-126 forming the first underpass 132 interconnect of the electrically conductive films 120-122-124-126 forming the spiral interconnect 120-122; and the narrowest part (UW) in the portion of the spiral interconnect 120-122 intersecting with the first underpass 132 interconnect is wider than the narrowest part in the portion of the spiral interconnect 120-122 not intersecting with the first underpass 132 interconnect; and wherein in the portion where the spiral interconnect 120-122 and the second underpass interconnect intersect with each other, the m-layers adjacent to each other are used as the electrically conductive films 120-122-124-126 forming the first underpass 132 interconnect of the electrically conductive films 120-122-124-126 forming the spiral interconnect 120-122; and the narrowest part (UW) in the portion of the spiral interconnect 120-122 intersecting with the second underpass interconnect is wider than the narrowest part in the portion of the spiral interconnect 120-122 not intersecting with the first un-

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derpass 132 interconnect. Note figures 4A, 5A-5E, 6, and 7, and paragraphs 0062, 0063, and 0069 of Lowther et al.

**B.** With regard to claims 5-8 Lowther et al. discloses a transformer (center-tapped inductor) that is a combination of two spiral inductors formed with two or more levels of electrically conductive films 120-122-124-126 and insulators 242 inserted between pairs of the levels of the films and including a continuous spiral interconnect 120-122 having a spiral shape, disposed in an i-th layer of the electrically conductive films 120-122-124-126, and electrically connected by contact plugs 134-136 to electrically conductive films 120-122-124-126 in a layer adjacent to the i-th layer, and a first underpass 132 interconnect including a k-th layer of the electrically films that is electrically connected to a adjacent electrically conductive film, and that is electrically connected through contact plugs 134-136 to an internal end of the spiral interconnect 120-122, and a second underpass (also numbered 132 in the close-up view of figure 4A) interconnect including h-th levels of electrically conductive films 120-122-124-126 electrically connected by contact plugs 134-136 to an electrically conductive film in an adjacent layer, and electrically connected to a portion of the spiral interconnect 120-122, but not to ends of the spiral interconnect 120-122, wherein the spiral interconnect 120-122 and the first underpass 132 interconnect are opposite each other, the spi-

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ral interconnect 120-122 and the second underpass interconnect are opposite each other, j-th layers of the electrically conductive film are part of the first underpass 132 interconnect, an m-th layers of the electrically conductive films 120-122-124-126 adjacent to each other are the first underpass 132 interconnect, and the spiral interconnect 120-122 opposite the first underpass 132 interconnect is wider (UW) than the parts of the spiral interconnect 120-122 not directly opposite the first underpass 132 interconnect and the spiral interconnect 120-122 opposite the second underpass interconnect is wider (UW) than the parts of the spiral interconnect 120-122 opposite the first underpass 132 interconnect. Note figures 4A, 5A-5E, 6, and 7, and paragraphs 0062,0063, and 0069 of Lowther et al.

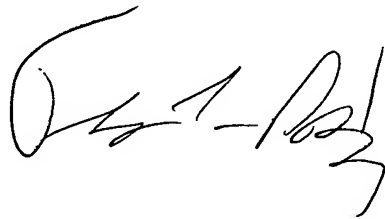
### ***Conclusion***

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thomas L Dickey whose telephone number is 571-272-1913. The examiner can normally be reached on Monday-Thursday 8-6.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nathan J Flynn can be reached on 571-272-1915. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read 'Thomas L. Dickey', is positioned above the printed name.

**Thomas L. Dickey**  
**Patent Examiner**  
**Art Unit 2826**  
**08/05**